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QUARTERLY

The seal of The Chicago Medical School is circular. It features a caduceus (a staff with two snakes entwined and wings at the top) in the center. The words "THE CHICAGO MEDICAL SCHOOL" are inscribed around the perimeter of the seal.

THE CHICAGO MEDICAL SCHOOL

VOLUME ⁸7, NUMBER ¹4

SEPTEMBER, 1946



Let your HEAD take you

(The average American today has a choice of just going where "his feet take him", or choosing wisely the course to follow. Let's skip ahead 10 years, and take a look at John Jones—and listen to him . . .)

"SOMETIMES I feel so good it almost scares me.

"This house—I wouldn't swap a shingle off its roof for any other house on earth. This little valley, with the pond down in the hollow at the back, is the spot I like best in all the world.

"And they're mine. I own 'em. Nobody can take 'em away from me.

"I've got a little money coming in, regularly. Not much—but enough. And I tell you, when you can go to bed every night with nothing on your mind except the fun you're going to have tomorrow—that's as near Heaven as man gets on this earth!

"It wasn't always so.

"Back in '46—that was right after the war and sometimes the going wasn't too easy—I needed cash. Taxes were tough,

and then Ellen got sick. Like almost everybody else, I was buying Bonds through the Payroll Plan—and I figured on cashing some of them in. But sick as she was, it was Ellen who talked me out of it.

"Don't do it, John!" she said. "Please don't! For the first time in our lives, we're really saving money. It's wonderful to know that every single payday we have *more* money put aside! John, if we can only keep up this saving, think what it can mean! Maybe someday you won't have to work. Maybe we can own a home. And oh, how good it would feel to know that we need never worry about money when we're old!"

"Well, even after she got better, I stayed away from the weekly poker game—quit dropping a little cash at the hot spots now and then—gave up some of the things a man feels he has a right to. We didn't have as much fun for a while but we paid our taxes and the doctor and—we didn't touch the Bonds.

"What's more, we kept right on putting our extra cash into U. S. Savings Bonds. And the pay-off is making the world a pretty swell place today!"

*The Treasury Department acknowledges with appreciation
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THE CHICAGO MEDICAL SCHOOL

QUARTERLY

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THE CHICAGO MEDICAL SCHOOL

VOLUME 8, NUMBER 1

SEPTEMBER 1946

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Editorials . . .

OF GROWING IMPORTANCE

Poets speak of the aged and of pedantry; yet how much more frequently do we find senescence with mental degeneration? Poets speak of the aged and their treasures

*"The best is yet to be,
The last of life, for which the first was made."*

Yet do we find this thing for which the First of Life was made?

In reality pedantry and bliss are enjoyed by a few, while the major portion of the aged are on the threshold of death, and know it. By the time we can consider ourselves out of the caste of middle life, a group whose boundaries are not sharply delimited on either side, we have already developed symptoms of a dystrophic nature. We find ourselves battling a degenerative process which may manifest itself anywhere at any time. In order to make Rabbi Ben Ezra more prophetic, we have much work to do, work which has already been started and has shown exciting results.

Senescence has only recently been regarded as a pathologic process caused by preventable metabolic, circulatory, degenerative or infectious disturbances. With this new concept of old age and its complications, the sciences of Geriatrics and Gerontology have become the problems of more laboratory explorers. The approach to Geriatrics has been through Gerontological research.

Anatomic and Physiological changes in senescence have already been described by various authors. Anatomic changes called "Senescent degeneration" occur in every organ of the body. With dehydration and poor replacement of dead tissue cells an organism is in time crippled. According to Krusen and Leden the capital physiologic changes are "gradual retardation of cell division, of tissue repair, and of oxidation, cellular atrophy, decrease in tissue elasticity, decreased speed and strength of musculo-skeletal reaction and progressive degeneration and atrophy of the nervous system." This pathogenic picture occurs throughout the body and can therefore incapacitate

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an individual in a multitude of ways. Diseases of the old may be of a hyperplastic and malignant nature—which brings up the question of the why's and wherefores of cancer.

Treatment of many of the Geriatric problems have been successfully devised. Probably one of the greatest advancements in recent medicine is the discovery by Huggens and Hodges that antiandrogenic therapy is beneficial and at times visibly curative for prostatic carcinoma. We were only recently astonished by the reports of Soviet investi-



gators on the action of the Antireticular cytotoxic sera . . . It apparently, in measured dosages, is capable of activating a lackadaisical connective tissue, and make a more elastic and young tissue out of one which has reached a stage of degeneracy. Although its discoverer is now dead, American and Russian workers are continuing in their effort to make use of this new observation.

The results of our effective methods in combatting the more acute conditions of the body can be seen in the already increased life span. In Kretschmer's report, the life span between the years 1900 and 1944 increased from 47 to 65 years of age and whereas only 17% of the total population were 45 years old or more in 1900, the percentage for this group had increased to 26.5% in 1940. By 1970 it is felt that more than half of the population will be included in this age bracket. The general problems of senescence will make themselves more evident to the general practitioner as the relative number of old people increase; at the present rate this speciality will soon be one of the most important in medicine.

ON MEDICAL EDUCATION

The final determinant in recognizing the potential of the young medical student is not met with until his first patient has been interviewed, diagnosed and treated; and the didactic materials which have been thrown his way in theoretical and practical arguments utilized. All the pedantry and pseudoerudition that can be easily feigned in the first two years of medical school are brought to light, for a doctor is not merely a reservoir of medical terminology, a man who will remember a complicated pattern via the mnemonic mechanism, but an individual built to absorb, assimilate, integrate and understand diseases of the body and mind, and utilize this knowledge in determining the pathological progress of a process which produces those symptoms and signs of which a patient complains. We can only appreciate that doctor who is capable of seeing the deep-seated reasons for somatic and psychic disturbances, for he is the only one who can treat rationally.

With the practical side of medicine in mind, we hope to enlighten our reader as to some of the clinical facilities which are now available to the students of The Chicago Medical School. The necessity for utilizing a good didactic background has always been stressed, and with Cook County Hospital, The Oak Forest Sanitarium, Illinois Masonic Hospital, the South Chicago Hospital, and the clinics of our school plus the many fine clinicians who work with the students, our training is comparable to that given in the larger medical institutions in the country. (See center spread.)

ANAPHYLAXIS IN THE DOG*

M. Rocha e Silva

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ANAPHYLAXIS was discovered in the dog, at the beginning of the century, by the French physiologist Charles Richet. From the beginning, it became clear that the liver plays a most important role in the etiology of the symptoms. Richet himself described the extreme engorgement of the liver and Weil (1917) showed that 60 to 80% of the total circulating blood will be found confined to the dilated vessels of the portal system, this accounting for the sharp fall in blood pressure and death of the animal. Manwaring (1910), Voegtlin and Bernheim (1911), Denecke (1914) and others have shown that shunting off the liver from circulation, either by means of an Eck fistula or simply by clamping the aorta and inferior vena cava just above the diaphragm would prevent shock.

The theory that histamine constitutes one of the most important mediators in anaphylactic shock in the dog received considerable support after the demonstration by Best, Dale, Duddley and Thorpe (1927) that this amine is a normal constituent of many tissues and that especially the liver is one of the richest sources of it, and also after the discovery by Dragstedt and Gebauer-Fuelnegg (1932) that histamine appears in large amounts in the lymph and the blood of the dog following anaphylactic shock. This fact was fully confirmed and extended by Code (1939) using exact methods for extraction of histamine from dogs blood. That most of the histamine which appears in the circulating blood comes out from the liver was shown more recently by Ojers, Holmes and Dragstedt (1941) by estimating histamine contained in pieces of the liver, taken before and after anaphylactic shock.

Peptone produces a shock in the dog, that is almost indistinguishable from anaphylactic shock. The similarity is so striking that Biedl and Kraus (1909) advanced the idea that anaphylaxis might be due to the manufacture of peptone-like products inside the body as final mediators conducing to shock. A similar discharge of histamine from

dog's liver in peptone shock was described by Holmes, Ojers and Dragstedt (1941).

But the picture of those kinds of shock will not be complete, until we refer to other events which constantly accompany anaphylactic and peptone shock. There is a substance the fate of which seems to be strangely connected with that of histamine, namely heparin, which is also discharged from tissues to blood during anaphylactic and peptone shock. Waters, Markowitz and Jaques (1938) have shown that this anti-coagulant also comes from the liver and can be accurately estimated in the blood stream by using the neutralizing property of protamine. There is good evidence pointing to the release of other substances, such as adenosine, a slowly reacting substance (S.R.S.) and acetyl-choline, although the indications for the participation of these pharmacologically active substances in the symptomatology of anaphylactic shock in the dog, are less convincing than those regarding histamine and heparin.

Finally, I have to mention the sharp drop in leucocytes and platelets. Quite recently there has been intense discussion on the question whether there is any parallelism between the drop in platelets and the intensity of the shock. This parallelism is striking enough in the peptone shock in the dog. In the case of anaphylactic shock, sometimes the platelets go down without very much manifestation of circulatory shock. On the basis of that fact, some investigators have concluded that a fall in platelets has nothing to do with the production of the symptoms. This conclusion is rather too far-reaching. The crucial demonstration for the non-participation of the platelets in the shock would be to have a profound shock without a fall in platelets. This, as far as I know was never observed. That the platelets and leucocytes can fall without any manifestation of shock can also be shown by the injection of liver glycogen. In collaboration with Drs. Grana and Porto, we have recently shown that the injection of glycogen produces a sharp decrease in platelets in the circulating blood. The leucocytes also are rapidly reduced, this confirming previous observations by Staub et al. (1938). In no case

*From a lecture delivered at The Chicago Medical School, August 15, 1946.

did the injection of glycogen produce the slightest manifestation of shock.

The main issue involved in the problem of the participation of platelets in these kinds of shock appears to be whether they *are* or *are not* disintegrated during or before the onset of the symptoms. In collaboration with Porto we have devised a technique to see what happens to the platelets when they are removed from peripheral blood following the injection of peptone or antigen. This technique consists in removing pieces of the liver directly into a 3.8% solution of sodium citrate and making smears which are stained by Giemsa. Taking fragments before and after the injection of the shocking agents we have been able to observe in the smears, first a clumping of platelets, immediately after the injection of the agent and later on, a massive disintegration of those clumps. There was also a rough parallelism between the degree of platelet disintegration and the discharge of histamine and heparin into the circulating blood. The next step would be to know what relationship might exist between this platelet disintegration and the other symptoms of the shock, the primary interest being attached to the liberation of histamine and heparin.

In 1941, Dragstedt and collaborators have shown that 3 to 5 milligrams of histamine come out from the liver, when the antigen or peptone are injected into the intact animal. What it means to have milligrams of histamine discharged from a single organ, can only be understood after recalling that histamine can be accurately estimated when it is present in hundredths of micrograms (0.000,01 mgm) per ml. Therefore 400,000 times more histamine would come out from a single liver, than that which might be accurately estimated. In 1943, Grana and I, decided to make what one would call an obvious and unnecessary experiment, namely to perfuse the liver of the dog with the antigen just to see those 4 or 5 milligrams of histamine pouring out of the liver. To our great astonishment; not a single microgram of histamine appeared in the perfusates. Using peptone, we could detect a few micrograms of histamine (not more than 10 or 12) contrasting with the milligrams which are released in the intact animal, but no heparin could be detected in the perfusates. From that point on, we had to explain why milligrams of histamine and heparin come out from the liver of the intact animal but none can be released from the same organ after wash-

ing it with Tyrode solution and then injecting the antigen or peptone into the cannula.

One explanation for that failure might be that the presence of blood was necessary for the discharge of histamine and heparin from liver cells. We started doing experiments by using citrated blood contained in paraffined receptacles. Leucocytes and platelets were also counted before and after the injection of the agent. Immediately after the injection of the antigen, the white blood elements (leucocytes and platelets) were instantaneously picked up by the liver and almost disappeared from the perfusion fluid. Using blood as vehicle we have been able to detect definite amounts of released histamine and heparin in the perfusates, especially in the blood retained inside the organ and drained after stoppage of the perfusion. But, in most of the cases, those amounts were disappointingly small. Only in one case could we detect amounts of histamine and heparin which might be compared with those found *in vivo*. Our conclusion by that time was that, although citrated blood is definitely better than Tyrode, as vehicle for those experiments of liver perfusion, there still was a disturbing factor preventing histamine and heparin from coming out.

Only a few weeks ago, we have been happy enough to find the answer to this puzzling question in the laboratory of Dr. Best, in Toronto. We decided, in collaboration with Drs. Jaques and Fidler and Miss Scroggie, to exclude the anti-coagulant from our experiments of liver perfusion. Fortunately, we had at our disposal a new weapon recently introduced by Jaques and collaborators (1946), to keep the blood unclotted for long time without any anti-coagulant added to it. This is a new plastic (methyl-chlorosilane) devised by the laboratories of the General Electric Co. (Dri-Film 9987). After hydrolysis, this material gives up a film of silicones, that fixes upon the glass-ware conferring strong water repellents properties. When blood is poured into flasks coated with silicones, it remains unclotted for one or two hours and the platelets are well preserved for at least one hour. Using blood stored in silicone treated receptacles, we have been able to perfuse the liver of the dog without any anticoagulant. Peptone was added immediately before the blood was pumped into the organ. When this was done, enormous amounts of histamine and heparin came out from the liver. In one of the experiments, the total amount of histamine was around

3.3 milligrams. In another we could estimate as much as 8.5 milligrams of histamine. The perfusates were collected in separate samples of 25 to 30 ml. each. Immediately after the injection of the blood—peptone, the histamine went up to 56.5 micrograms per ml of blood! During the first 2 or 3 minutes of perfusion several milligrams of histamine came out in a free state, from the perfused liver. After passing through the organ, the blood remained incoagulable for 24 or 48 hours and the heparin estimated by the protamine test amounted to 50 or more milligrams. Those experiments provide the final proof that the blood contains a factor or factors which are necessary for the discharge of histamine and heparin from the liver of the dog. Since the anti-coagulant constitutes a disturbing factor and the best results can be obtained when the blood is kept as near as possible in its natural condition, we have to conclude that the most labile part of the blood (leucocytes and platelets) are probably involved in the production of the discharge of histamine and heparin. We have applied the technique of making smears of the organ to pieces of the liver before and after perfusion with total blood. When citrate or heparin were used as anti-coagulant the platelets were found forming clumps inside the organ and these clumps were sometimes well preserved until the end of the experiment. In those cases of enormous discharge of histamine and heparin, the clumps were either heavily damaged or totally disintegrated. In their places we could only observe a dust of well stained granulations which might be identified as remains of platelets. Therefore, we can assume as a working hypothesis that the discharge of histamine and heparin from the liver of the dog, might be connected with the disintegration of platelets and probably also of leucocytes inside the liver parenchyma.

But, by what mechanism would platelets or products thereof be able to discharge histamine and heparin from liver cells? In order to find an answer to this question, we have to approach the problem from an entirely different point of view. For a long time we have been studying the pharmacological properties of trypsin. Trypsin contracts the smooth musculature of almost all species of animals and liberates histamine when perfused through the guinea pig lung or dog's liver. I mean, it does that directly and not through the intermediary of the blood. Besides that, trypsin also liberates heparin into blood and also when

perfused through the isolated dog's liver. Therefore, trypsin or any related proteolytic enzyme can obviously be envisaged as constituting one of the mediators of anaphylactic shock.

The firm problem was to know which trypsin might be the effective agent in anaphylactic shock in the dog. In other terms, which trypsin might be called upon to be responsible for the discharge of histamine and heparin from dog's liver. Since the blood is so important for this discharge, we thought from the beginning that plasma trypsin might be the agent. As known, this plasma trypsin (or plasma protease or plasmin) is present in the blood in an inactive form, requiring an activator to render it effective as a proteolytic enzyme. We can test the proteolytic activity of plasma trypsin, either directly, by estimating the NPN after incubation for 48 hours (as in the method described by Schmitz, 1938), or by observing the fibrinolysis which occurs when plasma trypsin is activated by chloroform (Tagnon, 1941) or *Streptococcus fibrinolysin* (Christensen et al. 1945; Kaplan, 1944 and 1946). I first tried to detect any free trypsin activity in the blood after anaphylactic shock, by the direct method, namely by titrating the increase NPN, after incubation. The most consistent effect we have been able to detect was a sharp drop in tryptic activity in the blood, this drop being somewhat correlated to the intensity of the shock. We have attributed this to the presence of heparin, since heparin has a definite anti-tryptic effect. The other method of detecting free tryptic activity, namely by observation of fibrinolysis, was also hampered by heparin. It is obvious that, if the blood does not clot, on account of the discharge of heparin, we could not detect the redissolution of the coagulum, that is the fibrinolytic effect. At that point, we availed ourselves of a highly interesting suggestion contained in a letter of Dr. L. B. Jaques of Toronto. He told me that, when he and Dr. Waters were doing experiments with the protamine test in anaphylactic shock, the coagulum frequently redissolved, after being clotted by protamine. This suggestion appeared to afford an elegant demonstration of the activation of plasma trypsin in anaphylactic and peptone shock in the dog. Therefore, I decided in collaboration with Andrade and Teixeira to study more carefully this "fibrinolytic protamine test". This test is set up in the following way: Decreasing concentrations of protamine are prepared in a series of tubes and the blood

sample distributed over the tubes, without anticoagulant. The tube which clots first indicates the equivalent of heparin present. But, after clotting, some of those tubes show rapid and striking fibrinolysis. This fibrinolytic effect is maximum after a first injection of the shocking agent, moderate after a second and usually absent after a third injection.

To explain the disappearance of this fibrinolytic effect after a short period of time, we should have to assume that an anti-fibrinolytic substance appears in the blood. That this substance might be heparin itself was suspected from the beginning. Later on, we have been able to prove by direct experiments, that heparin can stop the whole fibrinolytic effect when injected *before* peptone. This was definitely shown by using a preparation in which the liver was excluded from the system. The easiest way to do that is to clamp the thoracic aorta and inferior vena cava just above the diaphragm. In this so-called *anterior animal* or *thoracic animal*, after the injection of peptone, we observe a strong fibrinolytic effect until the end of the experiment, and no heparin appears in the blood samples. Therefore, we can be sure that all samples taken from a "thoracic animal", after the injection of a suitable dose of peptone, will fibrinolyse. If we inject heparin, before the peptone, however, fibrinolysis is prevented. We have to assume that heparin prevented the *activation* of trypsin and not the effect of active trypsin, since heparin had no inhibitory effect upon the fibrinolytic effect when added *in vitro* to the blood samples taken after peptone injection. But, the important point I wish to emphasize is that platelets undergo an enormous process of disintegration in the lung parenchyma. This was shown by taking pieces of the lung after the injection of peptone in the thoracic animal and making smears to see the platelet clumps. Usually, after the injection of peptone, those clumps are formed initially but after a few minutes they can be seen entirely disintegrated and after a while only exceptionally we can see small clumps in the slides. If heparin is injected before the peptone, the platelets will clump as before, but the clumps can be seen to be well formed and intact even a long time after the peptone injection. No fibrinolysis occurs. This constitutes strong evidence that platelets are directly concerned in the process of activation of plasma trypsin. It is interesting to recall that activation of plasma trypsin by products derived

from platelets was demonstrated by Iyengar and collaborators, in 1942, by using a direct chemical method of estimating the NPN after incubation.

Recently, we have drawn up the following scheme in order to visualize the chain of events probably taking place in the liver of the dog during peptone and anaphylactic shock:

Constriction of the sphincters of supra-hepatic veins,



Micro-thrombi of leucocytes and platelets,



Disintegration of platelets and probably also of leucocytes,



Activation of plasma trypsin by products derived from platelets,



Liberation of histamine and heparin by the active proteolytic enzyme,



Aggravation of the liver stasis by the liberated histamine.

Although theoretical in basis, all the steps of this cycle of chemical and pharmacological reactions have been demonstrated by direct experimental approach and only their logical arrangement can be open to discussion and criticism. I have no doubt that a better explanation might be found, and I leave to any one in this audience to suggest an alternative solution for this most puzzling problem.

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NEWER DEVELOPMENTS IN UROLOGY DURING THE WAR YEARS

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Chicago Medical School

OF the many newer developments in Urology during the war years, I shall present only the following few for brief discussion. These are chosen because they are vital developments and of considerable significance; and also because most of them have passed the experimental stage and are applied in clinical practice.

Urolithiasis

In this field I wish to mention only two newer developments, one having to do with the genesis of stone formation, and the other with a new technique for removing kidney calculi.

The idea is gradually gaining acceptance that all human beings have microscopic calculi in their kidneys. The beginning of this concept was first presented by Randall¹ in 1937. He observed calcium plaque formation of the renal papillae in 140 of 609 autopsies. In the same series, 49 papillae were observed with calcium deposition and adhering stones.

Randall's ideas were corroborated and further developed by Anderson and McDonald². They made a study of microscopic calculi as found in the pyramids of 168 normal and pathologic kidneys. They made 629 histologic preparations. Failure to find the microscopic calculi after study of the section from any particular kidney was followed by the cutting and sectioning of further pyramids from the same kidney until the plaques were found or their absence proved beyond a reasonable doubt. Microscopic calculi were eventually found in all the kidneys.

They concluded that microscopic calculi are probably present in all human kidneys, and are probably formed by the process of phagocytic ingestion of minute calcium particles which, by coalescing, form islets of calcareous deposits.

The microscopic calculi may or may not furnish nuclei for future stone formation. Most people do not develop stones in spite of the presence of microscopic calculi. Those who have a tendency to stone formation have some metabolic disturbance. In other words, urolithiasis is probably not a disease of the kidneys themselves, but rather a disease of metabolism, the nature of which is not yet completely understood.

Use of Fibrinogen Coagulum in Pyelolithotomy

It is well known among urologists that recurrence of real calculi following surgical removal is, in the majority of cases, due to incomplete removal of all calculi, or to fragmentation of calculi during the process of removal, leaving some fragments behind.

In an effort to insure the complete removal of all free stones from the pelvis of the kidney, as well as to reduce to a minimum the trauma to which the kidney is subjected at the time of operation, a new technique for pyelolithotomy has been developed by Dr. Dees³. At open operation solutions of human fibrinogen and thrombin are simultaneously injected into the renal pelvis, filling it completely. A firm tenacious coagulum results which forms a perfect mold of the cavity of the pelvis and calyces, and within this clot are incorporated all free stones. Four minutes after injection of the fluid material, the coagulum is removed through the usual pyelolithotomy incision. All free stones within the pelvis should be removed, incorporated within the clot.

There are a few limitations, such as a narrow infundibulum, adherent calculi and intrarenal pelvis, where this technique would fail. But barring the above mentioned exceptions, this new method is a considerable step forward in preventing recurrences of urinary calculi.

Carcinoma of the Prostate

In 1941 Drs. Huggins and Hodges^{4, 5} of the University of Chicago introduced a method of anti-androgenic treatment of carcinoma of the prostate. They showed that carcinoma of the prostate grows and is clinically aggravated by administration of androgens. On the other hand, elimination of androgens from the body has a regressive effect on the cancer.

The antiandrogenic treatment consists of bilateral orchiectomy; the administration of estrogens, or both. With this treatment patients rapidly improve in strength, gain weight, and metastatic pains improve or disappear entirely. Locally, the carcinomatous prostate feels smaller and softer, and in some cases all clinical evidences of malignancy disappears. The estrogen usually

employed is a synthetic product known as stilbesterol, and the dose varies from 1 to 5 or more milligrams per day. The only occasional untoward effect is enlarged and painful breasts. In such cases the dose of the drug is reduced.

When patients with carcinoma of the prostate develop symptoms of obstruction to the urinary flow, they may be relieved of their symptoms by treatment with estrogens. If this fails, it may be necessary to remove the obstructing prostatic tissue. This is especially true when there is an associated benign prostatic hyperplasia. These cases are ideally suited for the removal of obstructing tissue by the transurethral method.

Transurethral Surgery

During the war years transurethral resection of the prostate gland has gained a greater foothold and is being employed more than ever. This is due to the increased understanding of the anatomy of the hyperplastic prostate, and to the more systematic training of the younger urologists in this method. The two outstanding complications of this method, namely hemorrhage and infection, are being controlled more successfully. Hemorrhage is combatted by accurate hemostasis at the time of operation by the use of the bag catheter, and by the liberal employment of blood transfusions when necessary. Infection is combatted more successfully by the use of sulfa drugs, penicillin and streptomycin.

We have learned that to avoid postoperative morbidity (persistent pyuria and secondary hemorrhage), it is necessary to perform as complete a removal of the tissue as possible. Most confident resectionists remove the hyperplastic tissue to the capsule of the prostate—a true transurethral prostatectomy. Many leading clinics are able to report consistent mortality rates of 1% or less with an average hospital stay of about one week. This is a remarkable achievement in prostatic surgery.

As mentioned above, carcinoma of the prostate with symptoms of obstruction to the urinary flow not relieved by estrogen therapy, is an ideal indication for a transurethral removal of the obstructing tissue. Many tumors of the bladder, benign or malignant, formerly treated through suprapubic cystotomy, are now successfully treated by the transurethral method.

Drugs and Other Agents.

Some very valuable urinary antiseptics have been recently introduced. The most important of

these are the sulfa drugs, penicillin and streptomycin.

The efficacy of a urinary antiseptic may be judged by the effect it has on Gram negative organisms, which constitute 70-85% of urinary tract infections (Colon group; *Gonococcus*). From this point of view the usefulness of the three drugs named above varies with the type of infection.

The sulfa drugs are the oldest in this group. They were introduced before the war, but more refined products were developed during the war and we learned how to employ them advantageously. The sulfa group approaches being a universal urinary antiseptic, since it is effective against the majority of bacteria causing infections of the urogenital system.

Occasionally undesirable and even serious reactions follow the use of the drug. In such instances the sulfa product has to be discontinued. The sulfa drugs most commonly employed in urology are sulfathiazole, sulfadiazine, sulfacetamide and sulfamerazine. There is a tendency now to combine the various types of sulfa drugs since they are thought to act synergistically. They are best administered by mouth. A copious fluid intake and output, and alkalization of the urine is of definite advantage during the administration of the drug. The sulfa drugs have been used very extensively in urologic practice during the war years with extremely gratifying results.

Penicillin is very valuable in certain types of urologic entities, but is limited in its usefulness by the fact that urinary infections, with gram negative bacilli are resistant to the drug. It is curative to 95-98% of cases of Gonorrhea within 24-48 hours. The average dose is one hundred to three hundred thousand units, depending upon the presence or the absence of complications. Penicillin is most advantageously administered by the intramuscular route.

Penicillin gives excellent results in renal and perirenal infections with gram positive cocci. The fulminant coccal infections of the kidneys, so frequently fatal in former years, now respond dramatically to penicillin therapy. Surgery becomes unnecessary in the majority of cases, or is resorted to only for drainage. Perinephritis, due to coccal infections, also responds dramatically to penicillin therapy without surgery. If the

(Continued on page 26)

GROSS STRUCTURE OF THE SUBCUTANEOUS LAYER AND ITS MECHANICAL USES FOR THE SKIN

E. D. Congdon, A.M., Ph.D.

Professor of Anatomy

Chicago Medical School

ONE of the most striking adaptations to mechanical functions in the human body is seen in the subcutaneous layer whose chief mechanical activities are to support and attach the approximately seventeen square feet of skin. This layer permits the skin to yield moderately to its almost continuous series of displacements with reference to the musculo-skeletal layer of the body to which it is subjected night and day. It gradually brings these displacements to a stop before they become so great as to cause injury of nerves and other branching systems which pass to the skin.

In earlier anatomical writings it is implied, though not clearly stated, that most movements of the skin are either parallel to the surface or away from the deeper layers of the body. With this view there is associated the claim that the subcutaneous layer contains straight fibrous bands of connective tissue extending from musculo-skeletal layer to skin which resist these displacements. These supposed bands have been called cutaneous ligaments or *retinacula cutis*.

We have recently been interested in exploring the structure of the subcutaneous layer by means of series of cross sections recorded photographically. The bodies of adult males in varying conditions of adiposity were selected for study. We have examined especially the anterior and lateral trunk. To our surprise we found no cutaneous ligaments in the anterior and lateral trunk. We then followed the matter further by a more limited cross section study of palms, soles, scalp and the regions of some bony prominences. In these territories also we found no cutaneous ligaments. Three continental workers who have made cross-section studies in the soles, buttocks and thighs described no ligaments, though they did find systems of curved bands. We doubt the presence in the body of any cutaneous ligaments.

Cross-section study brings out clearly the fact that the chief gross formation in the subcutaneous layer of bodies which have not undergone wasting is *panniculus adiposus*. Its architecture has long been seen and figured by microscopical

anatomists in small areas. They have not used methods, however, that permit continuous observation of the *panniculus* in order to follow its variations over large territories. *Panniculus adiposus* has two chief elements, namely, alveolar or foam structure of fibrous connective tissue and fat lobules located in the spaces of the foam, which in turn contain within themselves a finer foam structure which supports the fat cells.

It has long been recognized that the subcutaneous *panniculus adiposus* acts as a pad in a few restricted areas where pressure on the skin may be especially great. Such areas are the soles of feet and the buttocks. The explanation of the mechanics of this pad action has to do with the individual fat lobules and their fibrous coverings. It runs as follows. The pressure perpendicular to the body surface tends to cause the semi-fluid fat of the lobule to burst through the fibrous wall. The fibres of the wall are thus tensed and resist the compression. In this way, for example, the *panniculus* under a heel bone of a man weighing two hundred pounds, though in itself soft tissue, behaves as a mass of springy rubber when his weight is carried on his foot.

We cannot find the claim of pad action made in the literature for any but a few restricted localities, though it may be that some have taken for granted wider distribution of this action. Since the *panniculus* underlies most of the skin and has the same basic structure everywhere, we must conclude that its chief mechanical function everywhere under the skin is as a pad. This leads to the further inference that the most frequent movements of the skin are depressions due to pressure from without or elevations due to pressure from the swell of organs lying deep to it. In either of these instances the *panniculus* will act like a pad.

It is not to be denied that the skin may be pulled parallel to the surface due to friction of bodies rubbing against it and due to stretching of skin on extensor surfaces. Indeed the skin doubtless undergoes other rare types of displacement. When the skin is subjected to either of these

pulls, pannicular structure is stretched in the direction of pull and parts of adjacent alveolar walls can be seen in section to be incompletely aligned to approximate straight bands. Thus the alveolar structure shows its mechanical versatility by parts functioning as ligaments. Yet after all there are no actual ligaments, only distortions of a three dimensional alveolar structure.

The pad action of the subcutaneous layer calls to our attention a similar function of muscles. When a full back presses his way through a football line, not only does the subcutaneous layer of the shoulder act as a pad to reinforce the pad in his harness, but the deltoid muscle also hardens. This activity is obviously something very different from the moving of bones by muscles. It is one of several types of lateral actions of muscles which occur in any normal individual many times a day and should be discussed in our textbooks of anatomy and physiology.

As far as we can find, there are in the body two outstanding series of modifications of the basic alveolar structure of the subcutaneous layer, aside from its changes due to variations in the amount of subcutaneous fat. One of these modifications is the alignment of parts of adjacent alveolar walls of panniculus more or less exactly in one plane to form fibrous sheets paralleling the skin and termed superficial fasciae. We have, for example, the superficial perineal fascia of Colles. Spalteholz briefly pointed out fifty years ago this relation of fasciae to alveolar structure. Many authors writing in the English language have confused this clear concept of a superfascial fascia and applied the term superficial fasciae to fibrous layers formed by collapse of alveolar structure due to loss of fat in the wasted bodies so frequently encountered in the dissecting room. Or they have applied it to a true fascia plus collapsed panniculus lying on its surface. It is frequently impossible to tell whether you have the true fascia or the false fascia or a combination of the two by means of dissection alone. The mechanical function of superficial fascia is today little understood.

We have given especial attention to the distribution of the superficial fascia in the abdomen and thorax. We find it to usually be present in the anterior and lateral abdomen and about half the time to be present in the anterior and lateral thorax. Scarpa was seemingly the first to describe this fascia and he found it only in a narrow ter-

ritory close to the inguinal ligament. Those writing in the English language with apparently only one exception limit its distribution to the anterior abdominal wall below the umbilicus.

The remaining widely distributed type of modification of the alveolar structure is to be seen in series of curving fibrous bands forming especial patterns in different localities. These bands are to be regarded as formed by the alignment of parts of alveolar walls just as we have already described for the superficial fascia. The local patterns made by groups of these bands seem to have been clearly described only in the sole and in the buttock. Much remains to be done in tracing these patterns in the subcutaneous layer of other regions of the body. We are now working on two regions of especial interest.

* * * * *

Agitation for new laws is not so much intended to prevent specific instances of cruelty to animals as to subject scientific inquiry to hampering restrictions. The moral issue changes to this question: What ought to be the moral attitude of the public toward the proposal to put scientific inquiry under restrictive conditions? No one who really asks himself this question — without mixing it up with the other question of cruelty to animals that is taken care of by already existing laws — can, I imagine, be in doubt as to its answer. Nevertheless, one consideration should be emphasized. Scientific inquiry has been the chief instrumentality in bringing men from barbarism to civilization, from darkness to light, while it has incurred, at every step, determined opposition from the powers of ignorance, misunderstanding and jealousy.—*John Dewey.*

* * * * *

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THE SCOPE OF INDUSTRIAL DENTISTRY

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The Chicago Medical School

IT is obvious that the second world war emphasized the need of Industrial Health Service even more than did the first world war. During the last few decades public interest in this type of service has developed steadily as shown by the enactment of compensation laws by the States. Industrial management realized that an injured or an ailing worker could not be efficient in the production line, and gradually instituted measures to control the hazards of work; to improve general sanitary and health conditions; and to give immediate medical treatment to occupational diseases and accidents. Eventually an effort to maintain the industrial worker in good health was included in these measures, and finally the importance of Oral Hygiene in Industry was recognized by large industrial and commercial enterprises. The means employed to accomplish this aim are Safety and Sanitation Engineering, providing a safe and healthy environment for the industrial worker; and Industrial Medicine and Dentistry, providing the immediate treatment of injuries and illnesses, and a preventive health service so that the industrial worker may become more efficient in the production line.

"INDUSTRIAL DENTISTRY", as defined by the Council on Dental Health of the American Dental Association, "is that specialty of dentistry which is concerned with the dental health of the industrial worker as it affects or is affected by his general health or his working environment."¹ It is expected that the industrial dentist should have sufficient knowledge of the occupational diseases of the mouth to help him detect their incipient symptoms in his regular oral examination. On the other hand the industrial physician is supposed to have sufficient knowledge of dental pathological conditions to help him in general diagnosis or in his cooperation with the industrial dentist.

HISTORICALLY, although previous abortive attempts have been made, industrial dental service really began in the United States during the early part of the first world war. Previous to that time, the mouth hygiene movement reached the factory worker through the bulletin service

of the National Safety Council. The industrial dental clinic came into existence as an offspring of the industrial medical clinic. The first one was established in 1911 in the plant of the Armstrong Cork Company, and there were more than four hundred dental clinics in industry by 1920.² However, during the great depression it was natural that a decline would take place in Industrial Dentistry, thus reducing the number of clinics, and today it is difficult to ascertain their exact number, but it is reasonable to assume that it is more than four hundred.

In addition to the manufacturing plant, a number of large commercial establishments, especially in the East, have established dental clinics for the benefit of their employees. It has been found that having a dental clinic in a large department store is quite a saving, because a store without a dental clinic usually allows a worker to go to a dentist on store time, and a visit to a dentist for one hour's work usually results in the loss of a whole morning or a whole afternoon. The same principle holds true in the case of manufacturing plants.

The third class of community dental clinics are those which are supported by the mutual aid associations formed by the employees themselves. A good example of this type of a dental clinic is that of the International Ladies' Garment Workers Union which established the Union Health Center Dental Clinic in 1917, with only three dental outfits. In 1924, the clinic had grown to twenty-four dental outfits. Only members and their families are accepted for treatment and all types of dental service are offered at cost.³

In general, taking into consideration that the average working person cannot afford good dental service, even if he is educated to desire it, it becomes evident that the industrial dental clinic fits into the scheme of community dental service by assisting in providing this service for adults either free of charge or at a fee much nearer their means. On the other hand it is a well known fact that dental clinics for school children exist in a great number of cities, but there is only one dental clinic for children in industry that I know

of. This one takes care of children of about sixteen years of age before they enter employment, to enable them to get certificates permitting them to enter industry. This clinic, which has been established in Cincinnati, Ohio, offers service at cost, or, to those unable to pay, free of charge.⁴

THE TYPES OF SERVICE rendered in the industrial dental clinics may include all types of dental work. Some business establishments require a dental examination together with a medical examination for all who seek employment. In many industrial dental clinics the dental service consists of prophylactic treatments, examinations, radiograms, toothache treatments, and the insertion of temporary fillings. This service is offered to the employees at cost and in some clinics is supplied free of charge. For example, the dental clinic of the Metropolitan Life Insurance Company, established in 1915, offers free service at company's time, including examination and prophylactic care twice a year. For prosthetic service (i.e., dentures and bridgework) and for operative service (i.e. gold and porcelain fillings), the employees are usually referred to private dentists in their communities, or if they are not in a position to pay the regular fees, they are referred to a dental school clinic, where a nominal fee is charged for such services.⁵

During the second world war, the accumulation of years of dental neglect among workers has resulted in a major industrial health problem, causing inestimable man-power losses, manifested by industrial inefficiency, absenteeism and production delay, and a factor in industrial accidents.⁶ It has been found that those workers who are most often ill tend, on the whole, most often to have accidents, and that the prevention of accidents may depend to a considerable degree on the prevention of sickness.⁷

MOUTH INFECTION has been found in high incidence. From these dental foci of infection the dangerous bacteria and their toxins are slowly and continuously seeping into the bloodstream and are carried through it to the most important organs and regions of the human system. In the course of time a slow but accumulative degeneration of the tissues takes place resulting in a lower tissue resistance and an increased susceptibility to disease. It is evident that disease of any tissue of the body can be traced to mouth infection. Sometimes an acute reaction in a joint resulting in loss of function is due to absorption of toxins,

or it may be an allergic phenomenon due to dental infection, but more often the indirect effects of mouth infection are more serious resulting in chronic diseases of the eye, the kidneys, the heart and the blood vessels, the gastrointestinal tract, as well as the joints and the nervous system. It follows, therefore, that the close cooperation of physician and dentist in the handling of these cases is to be desired, if satisfactory results are to be obtained, thus bringing about a great improvement in the general health of the workmen following the elimination of their mouth infections.

INDUSTRIAL INJURIES of the teeth and the adjacent oral tissues require usually immediate emergency treatment and form the most necessary service in an industrial dental clinic. Contusions, lacerations of the face and the mouth, fractures of the bones, especially of the jaw bones are apt to occur in an industrial establishment. The successful treatment of many of these injuries require the closest cooperation between the surgeon and the dentist. In the most extensive industrial injuries of the head, body and extremities, in which dental trauma also occurs, emergency dental treatment can do much to relieve the patient and to provide sufficient comfort to make surgical treatment possible.⁸

In certain occupations mechanical injuries of the teeth and the adjacent tissues are coincident with the length of service in the particular occupation. Dressmakers show defects of the incisors due to cutting thread by these teeth, and shoemakers and carpenters show similar defects from holding nails between these teeth. Players of instruments (clarinet) show lesions of the upper incisors and thickening of the mucous membrane of the lower lips. Glassblowers develop flabby and stretched cheeks and flabby mucous membranes, and whitish gray spots and patches of various sizes appear. In overstretching, minute lesions of the mucous membrane appear, due to the proliferation of tissues following constant irritation, and the proliferated tissue becomes macerated and desquamated. Air tumors of the parotid gland have been observed in from 6 to 10 per cent of the workmen, due to air held in Stenson's duct. These tumors may be removed by compression.⁹

OCCUPATIONAL DISEASES of the mouth develop mostly in workmen exposed to the vapors of acids and to the fumes of metals and chem-

icals. An early detection of symptoms of such diseases may be a warning to the safety department to institute immediate preventive measures. The deleterious effects observed may be enumerated as follows:

Sulphuric Acid.—In the manufacture of sulphates in England, it has been observed that workers employed for seven years and exposed during that time to the vapors of sulphuric acids have lost all of their teeth. In the extraction of sulphur dioxide for the manufacture of sulphuric acid, the fumes of sulphur dioxide in the proportion of 0.03 to 0.04 per thousand in the air are very irritating and may produce caustic effects on the mucous membranes of the mouth and the upper air passages, and have been known to produce spasm of the glottis.¹⁰

Hydrochloric Acid.—The fumes of hydrochloric acid are also very irritating and, in a concentrated form, they have produced caustic effects on the tip and edges of the tongue, erosion of the teeth and ulceration of the nasal wall.¹¹ In Switzerland, it has been observed that the teeth of workers exposed to liberated hydrochloric acid and to vapors of nitric acid lose their luster and become brittle and sensitive to thermal changes and to weak acids liberated in the process of mastication, with the result that their mastication is greatly interfered with.¹²

Nitrogenous Compounds.—In the manufacture of nitroglycerin and nitrocellulose, it has been observed that the teeth of the workmen, chiefly the incisors and cuspids, become yellowish, dull rough and brittle. Their cutting edges become smaller and their corners wear off. The teeth become smaller and peg-shaped, with spaces between them, and, where they wear off to the gingival margin, proliferating tissue grows over the stumps. The destructive process starts outside and grows in, producing a slant surface of the crown.¹³ The inhalation of nitrous gases produces, among other serious symptoms, injury to the teeth.¹³

Prevention consists in the use of enclosed processes and proper supervision, so that there may be no leakage of gases. Good overhead ventilation should be used where acid fumes are present in considerable strength. The periodic general examinations should include a thorough oral examination, and if any deleterious effects are observed, they should be treated before they

reach the advanced stage. In general, it is important that the mouth and the teeth be kept scrupulously clean at all times, and periodic dental prophylactic care is to be highly recommended.

Occupational disease of the mouth due to phosphorus, mesothorium, mercury, lead, zinc and copper and their chemical compounds may be outlined as follows:

Phosphorus.—Of all the industrial poisonings, the most dreaded one is the so-called phosphorus necrosis or 'phossy jaw.' It is a chronic local disease, affecting the bones of the face, and especially those of the jaws. It usually starts in a carious tooth or a root exposed by receding gums, a gingival pocket or a recent wound due to extraction, and rapidly evolves into a periostitis of the alveolar process of that particular maxillary bone. It results in the formation of abscesses, sloughing of the periosteum and necrosis of the denuded bone; periostitis, periodontitis, pain, swelling, loosening of teeth, recession of the gums, supuration with a fetid odor, ankylosis of the temporomandibular joint and exposure of the bone surface, which becomes rough. All these preliminary symptoms lead to necrosis and destruction of the bone, which comes away from the upper jaw in fragments, while in the lower jaw a sequestrum forms which is held fast by the callus and is not spontaneously cast off.¹⁴ The pus is produced by the ready entrance of infecting microorganisms, due to the loss of resistance to infection by the periosteum. It produces excruciating pain, while it is enclosed in the abscessed bone, but when a fistulous opening is formed, it is very slow to heal and the discharge of the pus continues for long periods of time. If the upper maxillary bone is affected, ulceration of the lining of the nose may take place, and even perforation of the septum.

If the necrosis is not very far advanced, healing may take place in a year or two. In the lower jaw, some new bone may be formed, but in general the loss of several teeth and a part of the alveolar process cannot be avoided. In severe cases, the whole affected bone is lost, or both the upper and lower jaws must be removed; or even the bones of the face and the cranium may become suppurated, with the destruction of the eye, or an extension to the meninges may even take place, when death occurs early. Later, death may occur from chronic sepsis or tuberculosis. The death rate is about 20 per cent. When recov-

ery takes place, terribly disfiguring deformities remain.

Individual susceptibility plays a great role in the poisoning. Only a small percentage of those exposed, even of those with carious teeth, develop necrosis. Phosphorus has a specific action on the body system in general, setting up changes in the periosteum of other bones (besides those of the jaw) and lowering their resistance to infection. Necrosis follows the infection by pus-producing bacteria.

This disease occurs mostly among workmen of match factories, but after an international agreement, entered into in 1906, the use of poisonous phosphorus (white or yellow) was prohibited. The United States has imposed a prohibitive tax on these matches. A new product, "sequisulphid of phosphorus," has been developed in France, and it has been used since then in the manufacture of safety matches. Other industries in which phosphorus poisoning may occur are the manufacture of fireworks, and the production and handling of ferosilicon.

The treatment may be either early and radical or expectant and conservative. All carious teeth should be extracted and the wound properly curdled until complete healing takes place. (Some prefer to leave those teeth which show little decay). Abscesses should be incised, cleaned and drained, and, if necrosis of the bone is present, immediate subperiosteal resection through healthy bone is advised. Those following the expectant treatment wait until a sequestrum is formed before resecting the necrosed bone. They claim that a small portion of the bone has to be removed then, but if the danger of sepsis is great, an early extensive operation is necessary.¹⁵

Mesothorium.—In radium painting of luminous watches, etc., mesothorium acts in the same way as phosphorus, producing necrosis of the jaw. The poisoning takes place either through inhalation or through the use of a camel's hair brush, which is held by the lips in the intervals between painting.¹⁶

Mercury.—In mining and smelting of mercury, in metallic mercury industries, in industries producing chemical mercury preparations and in felt hat manufacturing, chronic mercury poisoning may occur among the workmen, this depending on their susceptibility. Women, young persons and weakly individuals are most disposed to it. Exposure to vapors of mercury, skin exposure to

dust of mercury and lack of cleanliness in handling it, or mercurial treatment of syphilis will produce the disease. Inhalation of dust of mercury causes, among other severe systemic symptoms, inflammation of the gums resembling the pyorrhetic conditions and inflammation of the mucous membrane of the mouth. There are three types of stomatitis: 1. Simple stomatitis, in which there is a metallic taste in the mouth; the teeth become blunt; the gums become bluish and congested, very sensitive, bleed easily and recede; salivation occurs, and the breath becomes fetid. 2. Ulcerative stomatitis, in which there are flat erosions and ulcerations (yellow), with well-defined, thickened borders covered with a gray and yellowish coating and surrounded by a zone of inflamed tissue. These ulcers are present on the tongue, the gingiva and the mucous membrane of the mouth and the lips. The teeth are painful and loose. 3. Gangrenous stomatitis, in which there is extensive ulceration and swelling of the lymphatic glands, alveolar abscesses, periostitis, necrosis of the jaw bone and general septicemia. The presence of thin pus manifests itself in both the ulcerative and the gangrenous types of stomatitis.

In corrosive sublimate poisoning, there is brittleness, with destruction of the teeth and gray or black discoloration of the teeth or artificial dentures, due to the metallic dust of mercury forming amorphous black mercuric sulphid.¹⁷ When corrosive sublimate is taken, instant pain and burning in the mouth occur as a result of the corrosive action of the substance. If it is absorbed through other channels (uterus or bladder), symptoms in the oral cavity are absent for the most part.¹⁸

Lead.—The only symptom of lead poisoning of the chronic type in the mouth is the formation of a line on the gingivae, which is slate-gray, and is due to lead sulphid (PbS) formed by the decomposition of food particles.¹⁹ In people with clean habits, it may be altogether absent.

Zinc.—Among the other symptoms of acute zinc poisoning, there is a metallic taste in the mouth, a bluish line appears on the gingiva, congestion and suppuration of the gingivae tissue takes place, the teeth become loose and fall out, a little pain is experienced, the jaw bones become involved and the glands inflamed.²⁰

Copper.—In acute copper poisoning, there is a bluish green line present on the gingiva and dis-

coloration of the teeth which remains even after good care has been taken of the teeth.

SYSTEMIC DISEASES having manifestations in the oral tissues are numerous. Such are the acute infectious fevers, the blood dyscrasias, avitaminoses and dietary deficiencies, digestive diseases, the drug metal and chemical poisonings, internal glandular anomalies, and many others. A competent industrial dentist may be able to detect such oral manifestations before the severe systemic symptoms appear and by referring the patient to the medical department for treatment will save the patient's health by preventing further disability.

TUMORS AND CANCEROUS GROWTHS of the oral tissues should also be made the object of early detection by the industrial dentist in the routine examination. In this connection he may have the assistance of the surgical department in making a more definite diagnosis. Early diagnosis of neo-plastic growths is absolutely essential so that the patient may get relief in time and thus possibly his life be saved.

IN SUMMARIZING it may be concluded that Industrial Dental Service should include oral examinations, prophylactic treatments, roentgenographic and clinical diagnosis, emergency dental treatment, elimination of dental foci of infection, emergency treatment of industrial injuries of the oral structures, treatment of occupational diseases of the mouth, recognition of cases of tumor and cancer of the mouth, and education in the care of the mouth.

The American Association of Industrial Dentists, which is composed of those engaged or interested in dental programs in industry, is developing standards of industrial dental practice. When these standards are established and adopted, Industrial Dentistry will have an opportunity to become uniform with other industrial health services and dentistry will take its proper place in protecting and improving the health of the industrial working population.²¹

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THE OATH OF THE HINDU PHYSICIAN

You must be chaste and abstemious, speak the truth, not eat meat. Care for the good of all living beings, devote yourself to the healing of the sick even if your life be lost by your works, do the sick no harm. Not even in thought, seek another's wife or goods, be simply clothed, and drink no intoxicant; speak clearly, gently, truly, properly, consider time and place, always seek to grow in knowledge. Do not treat women except when their men be present, Never take a present from a woman without her husband's consent.

When the physician enters a house accompanied by a man suitable to introduce him there, he must pay attention to all the rules of behavior, dress, deportment, and attitude. Once with his patient, he must in word and thought attend to nothing but his patient's care and what concerns it. What happens in the house must not be mentioned outside, nor must he speak of possible death to his patient, for such speech is liable to injure him or anyone else. In face of Gods and Men, you can take upon yourself these vows, may all the Gods aid you if you abide thereby, otherwise may all the Gods and Sacra before which we stand, be against you. And the pupil shall consent to this saying, so be it.

Alumni News

1900—Dr. Anna Medaris—retired; and former Township supervisor died May 16, at the age of 84.

1905—Dr. Otto F. Warning—a student at the Jenner Medical College, passed away June 14th at the age of 72.

1908-199—Dr. John A. Ellioot, Dr. Anton Liska and Dr. Bertram Johnson passed away, after 35 years of successful medical careers.

1917—Dr. William A. Heap passed away this year.

1920—We regret to announce the death of Dr. Dennis L. Hill.

1923—Dr. David Orval Thompson died this year.

1933—Dr. Clair Johns was a very welcome visitor recently at school. Dr. Johns was recently discharged from the Medical Corps and contemplates a return soon to the practice of medicine.

We regret to announce the death of Dr. Clifford O. McCreedy who was killed in an automobile accident August 8th. He was 41 years old.

1936—The Quarterly was very happy to learn of the birth of Howard Albert Fireman from his proud parents, Dr. and Mrs. Joseph Fireman. Howard arrived on August 29 weighing 8 lbs. 7 oz. Congratulations, Dr. and Mrs. Fireman.

Lt. Colonel Jo Rogers Hood was a recent and most welcome visitor at the school. For the past year Colonel Hood has been stationed at Oakland, California, where he has served as Chief of the Surgical Section of the Oakland Regional Hospital. Colonel Hood is now on terminal leave.

1937—The Quarterly is pleased to learn that Dr. M. Rothenberg has returned from the military service and is resuming his practice of medicine and surgery at 121A East Main Street in Collinsville, Illinois.

Dr. James A. Price died of pulmonary tuberculosis and Pott's disease on the 10th of February.

1939—Dr. Irving H. Blumenfeld has announced the opening of offices at 361 Vernon Avenue, Brooklyn, New York. Dr. Blumenfeld has recently been discharged from the U. S. Army Medical Corps.

1941—Lt. Colonel Edward J. Martens was a recent visitor at school. He is now on terminal leave and expects to be separated from the Army Air Forces in November.

1942—It was with much happiness that The Quarterly learned of the marriage of Miss Juliette

Mandle to Dr. Allen William Jackman in Waukegan, Illinois. The nuptials occurred on July 31. Dr. Jackman was discharged July 12 from the Medical Corps. The best of luck to Dr. and Mrs. Jackman.

Dr. Edward H. Einhorn writes us that he has just returned from Europe and is now on terminal leave from the Army. It is good to hear that you are back, Dr. Einhorn.

We have also learned of the recent marriage of Miss Lillian Giberman to Dr. Joseph Liebross in Chicago. Dr. Liebross was also recently discharged from the U. S. Army Medical Corps. All the luck possible on your new adventure, Dr. and Mrs. Liebross.

Dr. Nathan Horowitz was a recent visitor at school after being discharged from the U. S. Public Health Service. He was stationed at Cass Lake, Minnesota, where he served as medical officer in charge for nineteen months. Dr. Horowitz has returned to his home in New York.

1943—Dr. Sol Nichtern announces the opening of his offices for the practice of medicine at 344 East 17th Street, New York. Dr. Nichtern was recently discharged from the military service.

Dr. Paul Schmidt was a most welcome visitor at school recently. He has just been discharged from the Naval Reserve.

Dr. Irving N. Agrin writes that he is at present on terminal leave from the Navy Medical Corps. Dr. Agrin served with the 4th Marine Division on Maui, then aboard the USS APL-30 at Eniwetok and Kwagalein, and later at the base hospital No. 21 at Kwagalein.

Dr. Herman L. Weisberg announces the opening of offices for the practice of medicine at 4817 White Plains Ave., Bronx, New York.

Lt. (jg) Daniel Halpern visited the school while passing through Chicago on his way to his home in New York City where he will be separated from the service. Lt. Halpern recently had been stationed at Pearl Harbor and looked very handsome in his Island tan.

Dr. Herbert Gornstein has opened offices for the practice of medicine at 4806 No. Keeler Ave., Chicago. Good luck, Dr. Gornstein.

Dr. Edward Massen has been discharged from the U. S. Army Medical Corps after serving in Italy, Belgium, and Okinawa.

Dr. Sam H. Rosen announces the opening of offices at 133 East 58th Street, New York. Best wishes for the future from The Quarterly.

We were very happy to learn of the arrival on August 19th of Scott David Halpert, the son of Dr. and Mrs. Irwin Halpert. Congratulations, Dr. and Mrs. Halpert.

Lt. (jg) B. D. Iaia writes that he is now on terminal leave from the U. S. Marine Medical Corps. The last four months of his service were spent with the First Marine Division in China. Dr. Iaia is now at his home in Auburn, New York.

Dr. Robert D. Redston announces the opening of offices for the practice of medicine at 305 West 72nd Street, New York.

1944—The Quarterly was very happy to learn of the engagement of Ensign Elaine Baldwin, USNR (W), to Lt. (jg) Fredrick Swanson of the U. S. Navy Medical Corps. Dr. Swanson is stationed at the Naval Receiving Station, Brooklyn, New York.

Dr. Lester H. Gross announces that he is now engaged in the practice of medicine and surgery, with offices located at 1203 No. Dearborn, Chicago. Good luck, Dr. Gross.

Dr. and Mrs. Milton Vainder announced the birth of Pamela—7 lb. 2 oz. little girl—on August 10, 1946. According to latest report father has completely recovered.

Dr. Irvin Seaman, who is at present completing his residency in obstetrics at Sinai Hospital, Baltimore, has recently announced his engagement to Miss Bernice Brilliant.

* * * * *

ALUMNI RECENTLY SEPARATED FROM SERVICE

Dalitsch, Walter Wm.....	CMS 1925
Reilly, Maurice J.....	CMS 1930
Bufkin, Lindley L.....	CMS 1932
Johns, Clair L.....	CMS 1933
Starr, Adolph R.....	CMS 1933
Wakefield, Wm. J.....	CMS 1933
Bezdek, Joseph L.....	CMS 1934
Stephens, Jerry H.....	CMS 1934
Zidek, Emil R.....	CMS 1934
Glueckauf, Lewis G.....	CMS 1934
Borkenhagen, Wm. H.....	CMS 1935
Ilasi, Frank P.....	CMS 1935
Curoso, Louis C.....	CMS 1938
Skrypkun, Joseph J.....	CMS 1938
Lippert, Jerome H.....	CMS 1939
Schiff, Abe L.....	CMS 1938
Swiontek, Henry S.....	CMS 1939
Bartolo, Albert John.....	CMS 1940

Coleman, Samuel Richard.....	CMS 1940
Giovanelli, Ovidio J.....	CMS 1940
Olinger, David L.....	CMS 1940
Palow, Alvin.....	CMS 1940
Seidelman, Otto F.....	CMS 1940
Wexler, Ralph.....	CMS 1940
Bennin, Morris D.....	CMS 1941
Martens, Edward J.....	CMS 1941
Sabatino, Frank J.....	CMS 1941
Simon, Oscar M.....	CMS 1941
Chick, Nicholas.....	CMS 1942
Einhorn, Edward Harry.....	CMS 1942
Horowitz, Nathan.....	CMS 1942
Jackman, Allen Wm.....	CMS 1942
Liebross, Joseph.....	CMS 1942
Niec, Adam A.....	CMS 1942
Palumbo, Joseph Leo.....	CMS 1942
Panio, Alexander M.....	CMS 1942
Parisi, Frank.....	CMS 1942
Raymon, Sidney L.....	CMS 1942
Sandberg, Charles O.....	CMS 1942
Venckus, Julius.....	CMS 1942
Wichnick, Seymour D.....	CMS 1942
Agrin, Irving N.....	CMS 1943
Brodsky, Eugene.....	CMS 1943
Bromberg, Rudolph.....	CMS 1943
Chucker, George N.....	CMS 1943
Glassman, Harold S.....	CMS 1943
Levitt, LeRoy Paul.....	CMS 1943
Rottkov, Abraham.....	CMS 1943
Schmidt, Paul M.....	CMS 1943
Wein, Eber.....	CMS 1943
Weisberg, Herman Louis.....	CMS 1943
Greenberger, Sidney.....	CMS 1944
Larson, William D.....	CMS 1944
Swanson, Frederick.....	CMS 1944
Weishaus, James.....	CMS 1944



Faculty Notes

We take pride in our opportunity to extend a heartfelt greeting to the newest member of our faculty, Dr. Jack D. Kirshbaum, who has brought his wealth of knowledge and experience to our school in his new office as Associate Professor of Pathology.

Dr. Kirshbaum has had a remarkable career as a practicing and teaching pathologist since his graduation from the University of Illinois Medical School in 1928. He received his M.S. degree in pathology from the University of Illinois in 1934 and became a Diplomate of the American Board of Pathology in 1939.

His duties as a pathologist commenced with his internship at Cook County Hospital, followed by his residency in that field for 2 years, and until 1941, as staff pathologist at that same institution. In addition to Cook County Hospital, he was pathologist at the Woodlawn Hospital since 1933; South Shore Hospital since 1937; University Hospital from 1938-1942; and at the St. Mary Hospital in Kankakee from 1941-1942.

Dr. Kirshbaum started to exploit his teaching capabilities first as assistant in Medicine at the University of Illinois Medical School in 1932 for a 2 year period. Then for 6 years, beginning in 1936, Dr. Kirshbaum was an Associate in Surgical Pathology at Northwestern University Medical School. Coincident with his teaching at Northwestern, he instructed at the Cook County Post Graduate School.

It was at this time, in 1942, that Dr. Kirshbaum volunteered for the U. S. Army, and became a Colonel in the Medical Corps. It was upon his release from the Army, after 3½ years, that The Chicago Medical School was fortunate in securing his services for its Department of Pathology.

Beside being a Diplomate of the American Board of Pathology, Dr. Kirshbaum is also a member of:

- Chicago Medical Society
- Illinois State Medical Society
- American Medical Association
- American Association of Pathologists and Bacteriologists
- Chicago Pathological Society
- International Association of Medical Museums
- Sigma Xi
- Fellow, American College of Physicians



Jack D. Kirshbaum, M.D., M.S., F.A.C.P.

American Society of Clinical Pathologists
Illinois State Society of Pathologists
Association of Military Surgeons

Dr. Kirshbaum has contributed more than 40 original researches and reports to the science of medicine and pathology, and we know he will continue his brilliant work as Chief Pathologist of the Chicago Medical School.

Social Notes

It takes marriage to make Medical School appreciable and therefore we find matrimony and love and babies the trend of the day.

Dave Spiegel will make his a Christmas marriage to Florence Kurland of Brooklyn. Another Brooklyn girl, Rosalin Berman, will join hands with Leonard Goldstein, also during Christmas.

Nathan Kantor, a more patient freshman, will wait until June before he makes his fiancé, Shirley, his wife.

Congratulations to the Paul Roths who are expecting an heir in April.

Best of luck to Albert Chatzinoff on his marriage (ad)venture. Mrs. Chatzinoff was Miss Mildred Rosen of Chicago up to November 27th when the wedding took place.

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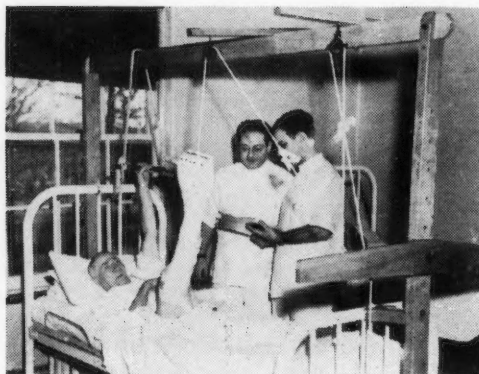
SCHOLARSHIP

The Second Year Scholarship of the Board of Trustees for 1946-1947 was awarded to Mr. Morris Binder.

The Third Year Scholarship was awarded to Mr. Bernard Cutler.



Entrance to Sanitarium



Orthopedic Problem



Intravenous Therapy



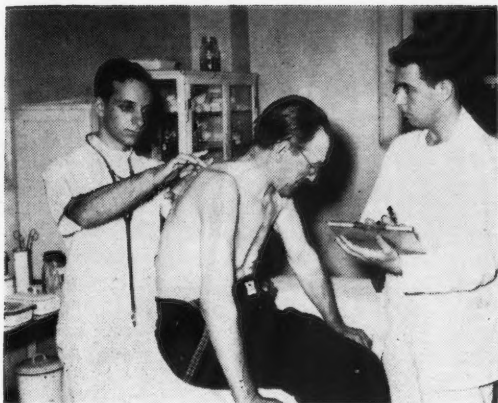
Laboratory Study



Tuberculosis Clinic

CLINICAL

The need for clinical experience in the field of Geriatrics was recognized early by The Chicago Medical School, and thus, during the Junior year the students are exposed to intensive and extensive Geriatric training at The Oak Forest Sanitarium where twenty-five hundred patients afflicted by varied and sundry clinical entities are either bed-ridden or potentially helpless. The students have the opportunity of comparing these pathologies of senescence to the normal



Physical Examination



Tuberculosis Hospital

EXPERIENCE

senile individual and in this way realize all the more the potential life capacity of the human body.

Complete history, physical and laboratory work-up are afforded each patient and the newest methods of treatment and care are utilized. We have seen many remarkable results with the new therapeutic agents which have only recently

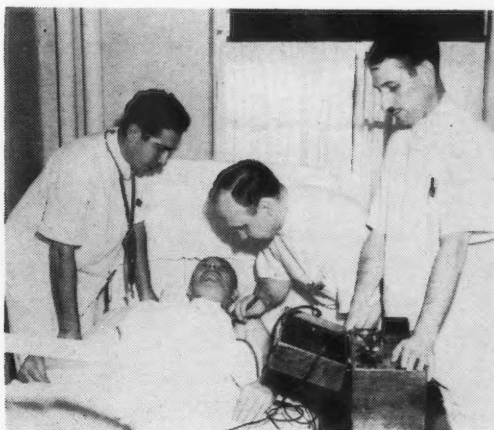
(Continued on page 22)



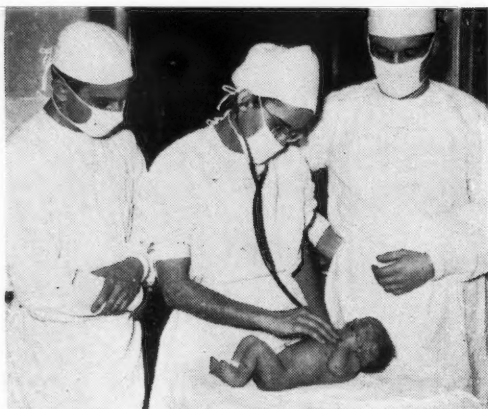
Corridor of Sanitarium



Grounds of Sanitarium



Electrocardiography Crew



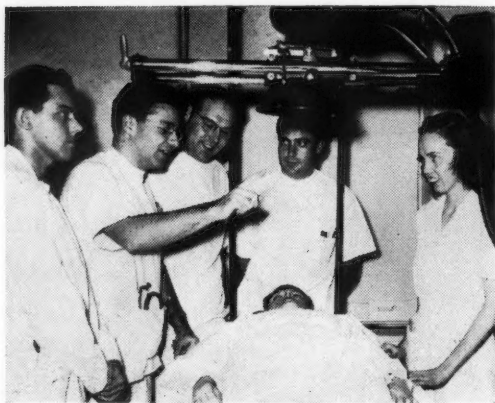
Obstetrical Clinic

Clinical Experience—

(Continued from page 21)

been discovered by chemists, physical scientists, and medical doctors.

Wards for cardiac cases, malignancies, orthopedic and internal medicine problems are set aside with clinically experienced specialists in these respective fields teaching the students and allowing them to aid in the different diagnostic and therapeutic problems. The Tuberculosis hospital is one of the largest in the mid-west and the opportunity for learning the intricacies



X-Ray Laboratory

of pulmonary physical diagnosis are many.

Special clinics in Internal Medicine, General Medicine, Cardiology, Urology, Dermatology, Arthritis, Otolaryngology, Gynecology, Obstetrics, Anesthesiology, Malignancies, Pediatrics, Surgery, Orthopedics, Psychiatry, Neurology, Circulatory dystrophies, plus many more, are held in The Cook County Hospital, The Chicago Medical School Clinics, The Illinois Masonic Hos-



Diagnostic Procedure

pital, and The South Chicago Hospital, all enhancing and integrating a didactic and practical experience which prepares the medical student for his career.

* * * *

Refuse to discuss a doctor's ailment with him unless you are being asked to treat him. But if you are, don't let him share the responsibility, treat him as you would any other patient. And when you yourself are ailing choose your doctor as decisively as you choose your solicitor, and put yourself as reservedly in his hands.—Lancet.

CLINICAL PATHOLOGICAL CONFERENCE

PRESENTED AT THE WOODLAWN HOSPITAL

J. D. Kirshbaum, M.S., M.D., F.A.C.P.

Associate Professor of Pathology

Chicago Medical School

A 66 year old white female was admitted to the Woodlawn Hospital January 25, 1939. The patient stated that she felt well until Thanksgiving (1938) when she noticed a fever, sweats and chills, associated with a cough, and pain in the left chest. She was treated at home for several weeks before coming to the hospital. Her appetite was fair; she had noticed some dyspepsia and had lost some weight—the exact amount she did not know. The patient had been taking magnesium sulphate for her bowels. Recently she complained of palpitations, dyspnea on exertion and some swelling of the feet. She had been aware of spots before her eyes and slight paresthesia of the hands. Her habits were regular and her past history was irrelevant. Except for some fullness after eating, she had no other gastric complaints.

Physical examination disclosed a slenderly built white elderly woman not acutely ill. The temperature was 100.8°, pulse 104, respirations 24 and the blood pressure was 144 systolic and 70 diastolic. The pupils were equal and reacted to light and accommodation. The tongue was coated and the teeth were missing. No lymph nodes were felt in the neck and the lungs showed nothing unusual. The heart appeared to be enlarged to the left; the tones were of good quality and no murmurs were heard. The reflexes were normal. The clinical impression was that the patient had an upper respiratory infection, possible anemia and moderate generalized arterio-sclerosis.

Laboratory Work-up. 1-25-39

Blood.

Red blood cells=3,540,000

White blood cells=12,400

Hemoglobin—2%

Differential count—polys. 74%

Lymphocytes 22%—eosin. polys.—3%

Basophils—1%

Urine Analysis—Normal

1-31-39—white blood count—15,600

Blood Kahn—Negative

An X-Ray of the chest (Dr. H. A. Olin) was reported as Hilum pathology; Pleural reaction, left base without fluid and enlargement of the heart and aorta.

Course

While in the hospital, the patient's temperature varied from 100.8 degrees to 101.6 degrees. She perspired profusely during her stay in the hospital, but otherwise there was no change in her condition. On the first of February, the patient vomited several times of 125 c.c. of bright red blood. The pulse was rapid and regular and she appeared very pale. Fluids were given subcutaneously but her condition became worse. She became stuporous, the pulse was imperceptible and the temperature rose to 104.2 degrees. She expired one week following her admission to the hospital or approximately 10 weeks after the onset of her symptoms. The cause of her hematemesis remained undiagnosed.

Autopsy finding.

In this case autopsy disclosed a well nourished, well developed white female. The pupils were round and equal. The sclera were pale and a bloody fluid was seen escaping from the mouth. The abdomen was markedly distended and elevated four fingers above the level of the chest. The mucosa of the lips and four finger nails were cyanotic.

Upon opening the abdomen, the loops of intestine were found to be markedly distended with gas. The lower edge of the liver extended 5 cm. below the right costal margin. There was 25 cc. of a clear fluid present.

The stomach also was markedly distended and extended 19 cm. below the Xiphoid process. On opening the stomach, it was found to contain 1100 c.c. of a partially coagulated and liquid blood. On the posterior wall, along the greater curvature and 4 cm. below the esophageal-cardiac junction, there was a large elevated cauliflower-like mass protruding into the lumen and this measured 10 x 8 cm. and 3 cm. high. The edges were soft and appeared rolled. The central portion of the tumor was ulcerated forming a crater-like defect. The surrounding tissue was dirty gray-black. The central portion of the defect presented a perforation 2 cm. in diameter which extended into the parenchyma near the upper pole of the spleen. The tumor also extended into the

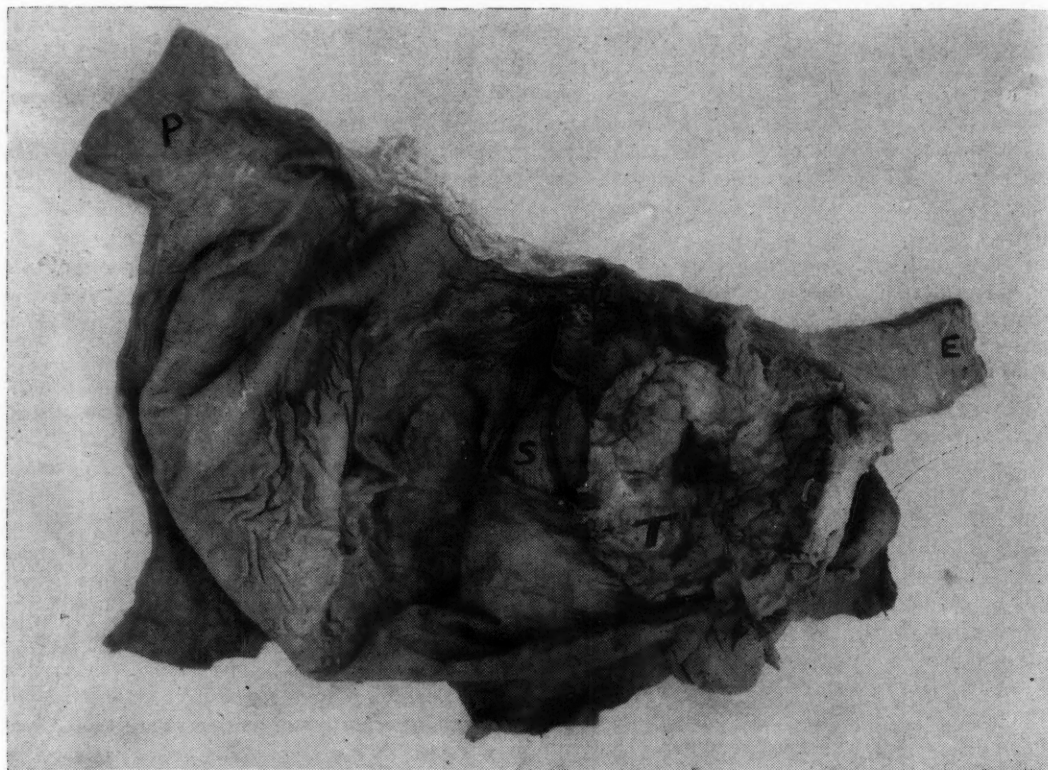
spleen in the form of a plaque which measured 5 x 4 cm. and 12 m.m. deep. The spleen was larger than normal weighing 200 grams. It was soft and the pulp was hyperemic.

The heart weighed 290 gram. The myocardium was light purple gray and soft. The coronary arteries showed a marked sclerosis and the aorta revealed a marked atherosclerosis.

Both pleural cavities contained a small amount

cinoma.

The anatomical diagnosis in this case was: Fungating medullary ulcerative carcinoma in the cardia of the stomach; perforation of the tumor and extension into the spleen and erosion of a branch of the splenic artery; massive gastric hemorrhage; confluent broncho-pneumonia in both lower lobes; marked coronary sclerosis and atherosclerosis of the aorta; bloody intestinal con-



Photograph shows the carcinoma of the cardiac end of the stomach. Note the large tumor (T) with the central ulceration (U) and extension into the spleen (S). The spleen is visible through a window made in the stomach.

P = Pyloric end of Stomach

E = Esophagus

of a straw colored liquid.

In both lower pulmonary lobes there were granular areas of consolidation.

The remaining organs showed no unusual findings nor any evidences of metastases.

Microscopic examination of the tumor revealed it to be composed of solid nests of cells with large hyperchromatic oval nuclei. There was a scanty fibrillar stroma. Mitotic figures were numerous. In the region of the central defect there were severe secondary inflammatory changes present. The histological picture is that of a medullary car-

cinoma; marked fatty changes in the liver; multiple congenital cysts in both kidneys and generalized anemia.

Discussion

This case is of particular interest for several reasons. First, the clinical picture of sepsis was atypical for a carcinoma of the stomach and second, the location of the tumor was not in the usual site. In those malignant tumors that have a tendency for marked necrosis with ulceration and perforation, the patient may manifest symptoms of sepsis which may be misleading in making a cor-

rect clinical diagnosis. Since the tumor in our case did not involve the cardiac orifice of the stomach, there was no symptoms of obstruction. In looking over the history of this case, the symptoms of dyspepsia, the loss of weight and fullness after eating, were all suggestive of a gastric lesion. With the terminal gastric hemorrhage the diagnosis of either a gastric carcinoma or ulcer should have been considered. The acuteness of the patient's illness would favor the diagnosis of a gastric neoplasm. The symptoms of fever, sweats, chills and cough were all indicative of a septic process and are not usually associated with a gastric neoplasm. An X-Ray examination of the stomach would have been very helpful—especially with the patient in the Trendelenberg position. Roentgenograms of the stomach taken in the upright position frequently fail to show lesions in the cardiac end of the stomach, therefore tilting the patient downward is the usual technique so as to visualize the upper end of the stomach. Gastroscopy is also of great assistance in establishing a proper diagnosis. Since the patient's illness was of such short duration, a complete medical work-up was not possible.

Carcinoma in the cardiac end constitutes about 15% of all tumors of the stomach, while 41% occur in the prepyloric region, 30% on the lesser curvature and 14% on the greater curvature of the fundus. Massive hemorrhage of tumors in the stomach is rare, while small hemorrhages are common.

Carcinoma of the stomach is the most frequent malignancy in the male. These tumors may be of three types: (1) Ulcerative (2) Vegetative or fungating (3) Scirrhus or diffuse of the Linitis Plastica type. There is usually no difference in the grade of malignancy of the various types. The tumor usually spreads by direct extension or by way of the lymphatics. One third of the cases usually show metastasis to the liver, lymph nodes and pancreas. It is of interest to know that about 50% of patients with carcinoma of stomach that come to operation already show metastasis to the liver.

The complications of carcinoma of the stomach are: perforation with peritonitis, abscess formation, hemorrhage, obstruction and compression of adjacent organs by tumor tissue. Compression of the common bile duct by enlarged lymph nodes is followed by an obstructive type of jaundice. This occurs not too infrequently.

Approximately 70% of patients with carcinoma of the stomach are over 50 years of age. Since most of the tumors ulcerate, one must always examine the stools and gastric contents for occult blood. The emaciation that the patient shows is due to an inadequate intake of food. About 50% of patients will exhibit a palpable tumor mass. The achlorhydria and achylia may induce a diarrhea. The invasion of nerves by the tumor is usually the cause of the pain.

In the undiagnosed case of carcinoma of the stomach, the life expectancy is about twelve months. Statistics show that only about 5% of patients are alive five years after the diagnosis has been made.

Since early diagnosis does give the patient an opportunity for radical surgery, every effort should be made to rule out or rule in carcinoma of the stomach and permit the patient the chance of a possible cure. This case illustrates how bizarre the symptoms of carcinoma of the stomach may be.

Summary

A case of a fungating carcinoma of the stomach near the cardia with extension into the spleen and perforation of a branch of the splenic artery is reported. A massive hemorrhage was the cause of death. The clinical picture of sepsis was most unique.

* * * *

OUT OF SIGHT, OUT OF MIND

*The oftener seen, the more I lust,
The more I lust, the more I smart,
The more I smart, the more I trust,
The more I trust the heavier heart,
The heavy heart breeds mine unrest,
Thy absence therefore like I best.*

*The rarer seen, the less in mind,
The less in mind, the lesser pain,
The lesser pain, less grief I find,
The lesser grief, the greater pain,
The greater gain, the merrier I,
Therefore I wish thy sight to fly.*

*The further off, the more I joy,
The more I joy, the happier life,
The happier life less hurts annoy,
The lesser hurts, pleasure most rife,
Such pleasures rife shall I obtain
When distance doth depart us twain.*

—Barnabe Googe

UROLOGY—

(Continued from page 9)

process has progressed to the suppurative stage, drainage becomes necessary. Penicillin is also very valuable as an adjunct to surgery on the Genitourinary organs. Used prophylactically, wounds heal faster with a minimum of infection due to secondary invaders.

Streptomycin promises to become the ideal urinary antiseptic, since it acts on the gram negative organisms found in urinary tract infections. However, its use has been of relatively short duration and more information is needed regarding undesirable reactions particularly those on the eighth nerve.

Use of Absorbable Hemostatic Gauze⁷ (Oxidized cellulose; cellulosic acid)

This product, recently introduced, consists of cellulose oxidized with nitrogen dioxide. Cellulose, when oxidized in this manner, undergoes changes which result in a material that resembles ordinary gauze in appearance and texture, but its chemical composition differs, in that it possesses a marked hemostatic quality and becomes completely absorbed in animal and human tissues. There is no tissue reaction. It can be used in any tissue in the body to control bleeding not controllable by clamp, ligature, suture, or coagulation.

This hemostatic gauze is especially useful in prostatectomy. After the gland is enucleated and frank arterial bleeding is controlled, the prostatic cavity is packed with this gauze. It accomplishes the following: it is hemostatic; pain accompanying removal of the ordinary pack is avoided, and secondary hemorrhage which followed removal of the old packs is eliminated.

Hemostatic gauze is a technical achievement of a practical nature and promises to become a most useful agent in Urology as well as in other fields of surgery.

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Abstracts

GOLD THERAPY IN RHEUMATOID ARTHRITIS: William W. Beckman, M.D., and Walter Bauer, M.D., Boston, New Eng. J. Med. 235:11, p. 362, Sept. 12, 1946.

THE purpose of this report is to determine whether gold salts are to be regarded as specific therapy, as having an adjuvant function, or as having no established value in rheumatoid arthritis.

The rationale or mechanism of action of chrysotherapy, as it is called, are unknown. Pharmacologically it has been found that the water soluble gold preparations will act more quickly and directly and give sooner warning of impending toxicity. Excretion is renal largely, some also appearing in the stools. Plasma concentration remains constant while excretion increases on days of administration; body accumulation under such a regimen is, however, progressive. Excretion may continue for months after the last administration, thus giving possible delayed and prolonged toxicity. Recent trends have been to cut the weekly dosage considerably although a course of therapy remains 500 mg; this is to reduce incidence, severity, and duration of toxic reactions.

Incidence of some toxicity remains as high as 25%. But the incidence of severe reaction is now about 3%. Toxicity is considered due to sensitivity, either primary or acquired. Patch and intracutaneous tests are valueless in predicting this, however. Careful clinical and laboratory examinations before starting each therapeutic dose are the only safeguards known. Urticaria, eczema, and colitis are further contraindications. Treatment of the reactions has been as yet unsuccessful and the constant risk of disabling toxic reactions must be kept in mind in any evaluation of therapeutic results.

Definitely established rheumatoid arthritis is the only type of joint disease in which gold therapy is effective, and even here, ankylosing spondylitis has not responded. Active arthritis should be present, but some relief has been reported in far advanced cases with marked deformities.

Due to varying criteria in judging results of therapy, evaluation is difficult, but the general trends showed improvement definitely enhanced in varying degrees in patients with this disease.

With the relapses in evidence, however, gold appears to exert at best only a transitory effect on the course of rheumatoid arthritis.

It is thus concluded that gold therapy cannot be considered as a specific or constantly effective treatment. The burden of proof still remains with the proponents of gold therapy to demonstrate their contentions after 3 to 5 year follow-up studies. And finally the authors conclude that the unpredictable, unpreventable, and at times irremediable toxicity, added to its as yet questionable efficacy, makes chrysotherapy in its present state a hazardous endeavor to be recommended for general use.

Sherwin Isaacson

* * *

THE THERAPEUTIC USE OF RADIOACTIVE PHOSPHORUS: Comdr. Shields Warren (MC), Am. J. of the Med. Sciences, June 1945.

This group of 81 cases represents the third large series of the use of radioactive phosphorus for therapeutic purposes. The methods of preparation consist of cyclotron bombardment and only a fraction of the total phosphorus bombarded is rendered radioactive. This phosphorus is then converted by standard chemical procedures to phosphoric acid and then usually to dibasic sodium phosphate; such chemical changes have no effect on radioactivity or vice versa. Radioactive phosphorus has the advantages of its half life being long enough to permit preparation without loss of activity, and short enough to have no long-range harmful effect on the body.

Therapy was attempted on highly radiosensitive diseases: leukemia, multiple myeloma, polycythemia vera, and Hodgkin's disease. Only such cases were selected as had become resistant to Roentgen therapy after initial favorable or unfavorable responses. The salt used was dissolved with glucose and saline, and intravenous and oral routes of administration were used, the former proving preferable.

Several representative cases are reviewed completely. On the basis of results obtained, several conclusions could be drawn. No harm at all was done with dosage as administered. It is especially of interest to note that normal erythrocyte formation was either undisturbed or actually aided in cases of anemia; while in polycythemia vera, however, a marked and rapid reduction in erythrocyte count was effected. Megakaryocytes and hence the platelet count was unharmed. A limited

number did better than would be expected with other means of therapy. Success is inversely proportional to the extent in which leukemic infiltration of the bone marrow interfered with normal hematopoiesis. Hence sternal puncture or biopsy are prerequisite to institution of this therapy.

The BMR served as a useful guide to results of leukemia therapy and may be even a better index at times than the peripheral white cell count. It was found that owing to the ready diffusibility of the phosphate iron, the radioactive phosphorus permeated all the body tissues and fluids although with striking variation. Leukemic tissue picked up a considerably higher concentration than normal tissues. Practically all radioactive phosphorus given intravenously is excreted via the kidneys. In oral administration, 25% may be recovered from the feces as precipitated insoluble phosphate which had not been absorbed.

Conclusions from this study show radioactive phosphorus to be a palliative type of therapy in the diseases so treated and it may be temporarily effective in cases no longer responding to X-ray therapy. About one-third of the cases treated showed temporary improvement, as judged by resumption of fairly normal activity for three months or more.

Sherwin Isaacson

* * *

ESSENTIAL DYSMENORRHEA—ITS TREATMENT WITH PAVATRINE: Weinberg, C.H., M.D., Am. J. of Ob. and Gyn., Vol. 56, no. 1, July 1945.

Since the true cause of dysmenorrhea in absence of pelvic pathology is still a moot question, no one routine of treatment gives any regular measure of success. The author has attempted to find the value of the antispasmodic effect of pavatrine on the uterine musculature in management of menstrual pains.

100 cases are reviewed, 20 of which had dysmenorrhea as their chief complaint and 80 who stated in the course of their histories that their menstrual pains were severe enough to cause remaining home from work or confinement to bed. Dosage was 1 standard tablet t. i. d. for 3 days prior to menstrual onset and also on the first day of the period. No case was used with fewer than menstrual periods recorded.

3 cases showed drug idiosyncrasy, such as severe trembling, which necessitated stopping treat-

ment. Complete relief was obtained in 48% of the cases; almost complete relief (requiring only occasional barbiturateamidopyrine tablet) was obtained in another 19%, thus giving satisfactory results in 67% of the cases.

The results of this preliminary study seem to indicate that a large number of women suffering from dysmenorrhea may now be able to get satisfactory relief from use of this new drug. Initial reports show only a very small incidence of minor toxic effects but further studies remain to be considered in this respect. Sherwin Isaacson

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INTRAUTERINE RESPIRATION OF THE HUMAN FETUS, Davis, Potter. M.D. JAMA 131:15 August 10, 1946 pp. 1194-1201.

By means of a radio-opaque dye, thorotrast, new evidence is offered to prove that respiratory movements occur during fetal life similar to those in the extrauterine environment. Prior to therapeutic abortions in 16 women, and delivery by Caesarian operation in 10 women, thorotrast was injected into the amniotic cavity. After removal of the fetus X-ray and histologic evidence of thorotrast was definitely found in the lungs of 12 of the abortion cases and at least 6 of the Caesarian cases. Probable evidence was found in 2 of the remaining Caesarian cases. In all but three cases evidence of thorotrast was found in the gastrointestinal tract.

On this basis the authors contend that a general pattern of respiratory activity is developed early in fetal life; that respiratory movements, though intermittent, irregular and shallow, are sufficient to force circulation of the amniotic fluid throughout the lungs; and that at birth air is substituted for this fluid, but that the pattern remains the same. This respiratory action, in addition to the fetal swallowing with complete GI activity (indicated by passage of thorotrast through the GI tract) has been shown to be present in a fetus weighing only 39 Gms.

Stanley Reichman

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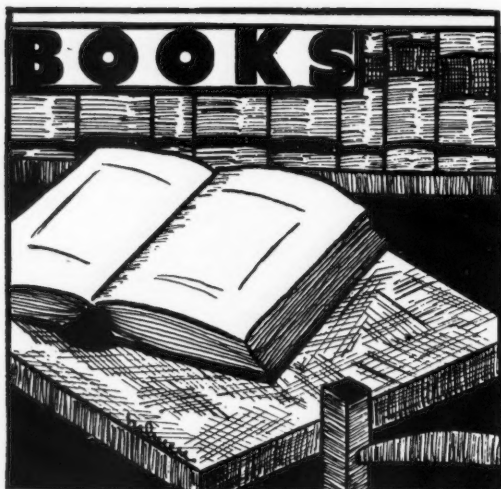
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Electrocardiography. By Louis N. Katz, M.A., M.D., F.A.C.P. Director of Cardiovascular Research, Michael Reese Hospital, Chicago, Ill.; Professorial Lecturer in Physiology, University of Chicago, Chicago, Ill. Second Edition. 883 Pp. including an Atlas of Electrocardiograms. Cloth, \$12.00. Philadelphia: Lea & Febiger, 1946.

Exercises in Electrocardiographic Interpretation. By Louis N. Katz, M.A., M.D., F.A.C.P. Second edition. Cloth. \$6.00. 288 Pp with 166 electrocardiograms. Philadelphia: Lea & Febiger, 1946.

* * * * *

THESE are two new editions of the already celebrated volumes on Electrocardiography by the noted Louis N. Katz, M.D., who is the director of Cardiovascular Research at Michael Reese Hospital, and to whom must be credited the clarification of this most difficult subject. These new editions have been thoroughly revised, particularly "Electrocardiography," and much more material has been inserted which is of value to the clinician and to the student of the subject alike. Because the subject of nomenclature and terminology has, in the past, been so confused and abused, Dr. Katz has been wise to include a new chapter on terminology which, together with the standards of the American Heart Association, should go a long way to elucidate this matter. It is furthermore, most gratifying to see that the several chest leads have been clarified by the author.

In his "Electrocardiography" Dr. Katz has presented the material in the most logical manner possible. Commencing with the theories under-

lying the why's and wherefore's of electrocardiography, and after considering the normal electrocardiogram together with the mechanism of its production, he presents and describes the electrocardiograms effected by extracardiac involvements; heart strain, the effects of various drugs, acute and chronic illnesses (such as acute Rheumatism fever, Diabetes Mellitus, Tuberculosis, Neurocirculatory states, etc.) and coronary diseases. The importance of electrocardiography in disease, for example, may be garnered from the studies performed by Bridges, Johnson, Smithwick and White (J.A.M.A. Vol. 131, No. 18, Aug. 1946) on hypertensive patients who underwent lumbodorsal sympathectomy. It is shown here, and as Katz points out again, the electrocardiogram is invaluable in determining the extent of the disease and the damage done to the heart.

Concluding this comprehensive work is the section on electrocardiography and the arrhythmias. Here, as in the previous section, is evidence of the great value of the work. Each arrhythmic electrocardiogram is analyzed with respect to the causal relationship of cardiac irregularity and electrocardiographic changes.

While the value, importance and meaning of the electrocardiogram is expounded to the fullest in "Electrocardiography", the companion piece, "Exercises in Electrocardiographic Interpretation" intends that the theories learned in the former volume be applied in attempting to diagnose the 100 cases presented in it. The analysis of an unknown electrocardiogram as lucidly outlined by Dr. Katz is as follows:

1. General Inspection and Survey of the Record
2. Determination of the Dominant Rhythm and of the Presence of Unusual Beats
3. Temporal Relation of the Auricular to the Ventricular Complexes
4. Measurements of the Duration and Amplitude of the Deflections
5. Systematic Description of the Record
6. Interpretation of the Electrocardiogram
7. Correlation of the Electrocardiogram with Previous Electrocardiographic Records of the Patient and with the Clinical Story.

Any student and practitioner having a basic knowledge of electrocardiography should have no trouble in the diagnosis of heart abnormalities as expressed by the electrocardiogram.

Dr. Katz has, with these two volumes, contributed much to the science of Electrocardiography.

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To The Chicago Medical School Quarterly

Having long felt the need of an index to the great amount of material that has appeared in the **Quarterly** since its inception, we have compiled for our readers the following cumulative index. Contributions of only passing interest and limited medical value have been omitted from the subject division. On the other hand, the author section is a complete list of our contributors.

My sincerest thanks to all the members of the staff who participated in this tremendous undertaking, and without whose help it could never have been completed.

Howard C. Berger
Associate Editor

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Vainder, M.	5	1	12			
Weisberg, H. L.	3	3	10			
Weisberg, H. L.	5	1	32			
Weisberg, H. L.	2	3	10			
Wien, F.	1	3	9			
Wishnoff, L.	2	2	14			
Wohl, M.	5	3	19			

* * * * *

SOME LITTLE BUG

*In these days of indigestion
It is oftentimes a question
As to what to eat and what to leave alone;
For each microbe and bacillus
Has a different way to kill us,

And in time they always claim us for their own.
There are germs of every kind
In any food that you can find
In the market or upon the bill-of-fare.
Drinking water's just as risky
As the so-called deadly whisky,
And, it's often a mistake to breathe the air.

Some little bug is going to find you someday,
Some little bug will creep behind you some day,
Then he'll send for his bug friends,
And all your earthly trouble ends;
Some little bug is going to find you some day.

The inviting green cucumber
Gets most everybody's number,
While the green corn has a system of its own;
Though a radish seems nutritious
Its behavior is quite vicious,
And a doctor will be coming to your home.
Eating lobster cooked or plain
Is only flirting with ptomaine,
While an oyster sometimes has a lot to say;
But the clams we eat in chowder
Make the angels chant the louder,
For they know that we'll be with them right
away.

Take a slice of nice fried onion
And you're fit for Dr. Munyon,
Apple dumplings kill you quicker than a train.
Chew a cheesy midnight "rabbit"*

Continued on page 40

Letters to the Editor

May second, 1945, was an eventful day. Following a light tank battle, we entered the town of Q, nestled in the foothills of the beautiful Harz mountains of Germany. The town was lightly battle-scarred, since it contained a half-dozen army hospitals. The C.O. placed a cordon of M.P.'s around each hospital and ordered me to inspect each one in regard to the authenticity of the personnel and patients. I welcomed this opportunity to see Nazi war medicine in defeat.

HOSPITAL NO. 1 was situated in an old school and contained approximately two hundred amputees in all stages of repair. Upon entering a ward, the leader would come to attention, click his heels, give his name, rank and the number of patients in the ward. All those who were able, stood at rigid attention at the side of their cots. Examination revealed that all the stumps of the amputees were covered with a paper similar to our paper towels and over this dressing was placed a piece of cheap wax paper. The German C.O. told me this type of dressing had been in vogue for better than six months, since medicinal supplies were unobtainable.

As each patient was approached, he would call out his name and injury: i.e., John Doe, shrapnel wound right leg, May 1945. There were surprisingly few non-healing stumps despite the lack of sulpha drugs and proper dressings.

HOSPITAL NO. 2 contained about 400 plastic surgery cases. A short, roly-poly surgeon (Colonel) was in charge. He told me that prior to the war, he had been professor of plastic surgery at Berlin. The work this man was doing was beyond belief. He had dozens of patients in all stages of repair looking most inhuman with their long rolls of skin attached to the nose, cheeks, chins, ears, and anchored to the shoulder, arm or chest. I spent a day in his surgery ward. The operating room was all in blue tile, as were the operating sheets, gowns and towels. His operative technique consisted of making parallel incisions, leaving both ends attached. He sewed them up into a roll or roodle, with interrupted silk sutures. Within two weeks, the roll would be healed and one end freed and attached to either the arm or chest. The length of the roll, approximately six inches, looking very much like a skin-covered Italian sausage. The next step, approximately three weeks later, was freeing the lower end of the roll and bringing it up to the prepared facial area. After firm attachment had occurred, the body end was cut from the body and the stump was molded with the aid of plastics. Noses, chins, ears, etc. were thus formed. Excess tissue was cut away with the scalpel. I can vouch for the outstanding results and subsequent high morale of the patients.

HOSPITAL NO. 3 was the central medical hospital, supervised by a general medical officer. There were supposedly 800 patients. Upon examination, I found that more than half were merely using the institution as a place to hide. We loaded up our trucks with about 400 of them and shipped them to P.W. cages. The truly sick had been without essential medical supplies for approximately six months. A German medical depot was located in another area and we managed to liberate enough supplies to fill the hospital requirements.

Examination of the remaining hospitals revealed the same lack of supplies and the same eagerness of the staff to do their utmost to relieve the sufferings of the ill.

Murry M. Paul, M.D.

* * * * *

THE ROMANCE OF REX

Piddle No. 1

*A farmer's dog came into town,
His christian name was "Rex".
A noble pedigree had he;
Unusual was his text.
And as he trotted down the street
'Twas beautiful to see
His work on every corner—
His work on every tree.*

Piddle No. 2

*He watered every gateway, too,
And never missed a post,
For piddling was his specialty
And piddling was his boast.
The city curs looked on amazed,
With deep and jealous rage
To see a simple country dog
The piddler of the age.*

Piddle No. 3

*Then all the dogs from everywhere
Were summoned with a yell,
To sniff the country stranger o'er
And judge him by the smell.
Some thought that he a king might be;
Beneath his tail a rose.
So every dog drew near to him
And sniffed it up his nose.*

Piddle No. 4

*They smelled him over one by one,
They smelled him two by two.
And noble Rex, in high disdain,
Stood still 'til they were through.
Then, just to show the whole shebang
He didn't give a damn,
He trotted in a grocery store
And piddled on a ham.*

Piddle No. 5

*He piddled on a mackerel keg,
He piddled on the floor,
And when the grocer kicked him out,
He piddled through the door.
Behind him, all the city dogs
Lined up with instincts true
To start a piddling carnival
And see the stranger through.*

Piddle No. 6

*They showed him every piddling post
They had in all the town;
And started in, with many a wink,
To pee the stranger down.
They sent for champion piddlers
Who were always on the go—
Who sometimes did a piddling stunt
Or gave a piddle show.*

Piddle No. 7

*They sprung these on him suddenly,
When midway of the town;
Rex only smiled and polished off
The ablest, white or brown.
For Rex was with them, every trick,
With vigor and with vim;
A thousand piddles, more or less,
Were all the same to him.*

Piddle No. 8

*So he was wetting merrily
With hind leg kicking high,
When most were hoisting legs in bluff
And piddling mighty dry.
On and on, Rex found new grounds
By piles and scraps and rust,
'Til every city dog went dry
And piddled only dust.*

Piddle No. 9

*But on and on went noble Rex
As wet as any rill,
And all the champion city pups
Were pee'd to a standstill.
Then Rex did free-hand piddling,
With fancy flirts and flits
Like "double-drop" and "gimlet-twist"
And all those latest hits.*

Piddle No. 10

*And all the time this country dog
Did never wink or grin,
But piddled blithely out of town
As he had piddled in.*

The Puddle

*The city dogs conventions held
To ask, "What did defeat us?"
But no one ever put them wise
That Rex had diabetes.*

—Jo Anderson

The Talmud recognized 248 (252) bones in the human body.

Raw liver diet was introduced as the treatment for pernicious anemia by Minot and Murphy in 1926.

The first college clinic in the United States was established in 1840 by Dr. William Parker at the College of Physicians and Surgeons, New York.

A dumb girl is a dope. A dope is a drug. Doctors give drugs to relieve pain. Therefore, a dumb girl is just what the doctor ordered. — Clinical Medicine.

Petroleum was used in Biblical days for medical purposes, it is said, chiefly for wounds and skin infections and was poured on camels afflicted with mange. — *Diplomat*.

If all emotional maladjustments are counted, then "all the world is queer but thee and me, and thee's a little queer." — Stanley Cobb.

Friedrich Daniel von Recklinghausen (1833-1910), German pathologist, had three diseases named after him: (1) multiple Neurofibromata; (2) osteitis fibrosa osteoplastica; (3) neoplastic arthritis deformans.

In 1809 the first operation for Oviotomy was performed by Ephraim McDowell of Kentucky.

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ANCIENT CAESEREAN SECTION

His birth could not be natural;
So willeth He who bringeth good. Bring thou
A blue steel dagger, seek a cunning man;
Bemuse the lady first with wine to ease
Her pain and fear; then let him ply his craft
And take the lion from his lair by piercing
Her waist while all unconscious. Then imbuing
Her side in blood, stitch up the gash.

Persian—Shah Nameh—999 A.D.

For this is the great error of our day in the treatment of the human body, that physicans separate the soul from the body.—Plato, Dialogues, Circ 380 B.C.

Aphrodisiac — Anything increasing sexual desire, such as absence of the female in the case of the male, or the absence of the male in the case of the female.

STREPTOMYCIN—

(Continued from page 29)

Streptomycin in experimental tuberculosis. *Scope*, 2, 12-16, 1946. (No. 2.)

Thompson, J. L., Jr. & Wagenheim, H. H. Use of streptomycin: report of a case. *Med. Annal. D. C.*, 15, 265-70, 1946.

Waksman, S. A., Geiger, W. B. & Green, S. R. The inactivation of streptomycin and the practical applications. *J. bacteriol.*, 51, 634, 1946.

Youmans, G. P. & Feldman, W. H. Sensitivity of tubercle bacilli in vitro to streptomycin. *J. bacteriol.*, 51, 608, 1946.

Hippocrates, in about 400 B.C., named tuberculosis "phthisis," which means wasting. He described it well, and for 2000 years afterward but little more was learned about it.

In 1845, hypodermic injections for relief of pain were first performed by Francis Rynd of Ireland.

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DEFINITIONS

(by Oliver Hereford)

Diagnosis: Inside information through which a doctor discovers how much you've got.

Health: A condition which, if it becomes epidemic, would be fatal to doctors.

Heel: Woman's sole remaining pedestal.

Intemperance: The retort to intolerance.

Liar: One who tells an unpleasant truth.

Psychology: A useful word with which you explain something you don't understand.

Resort: A secluded spot to which people flock in great numbers to avoid each other.

Taint: The fingerprint of heredity.



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The Editor

I hereby enclose (a check for) \$..... (1 year's subscription, \$3.00)
(2 year's subscription, \$5.00)

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.....

.....

Some Little Bug—

Continued from page 34

*And a grave you'll soon inhabit —
Ah, to eat at all is such a foolish game.
Eating huckleberry pie
Is a pleasing way to die,
While sauerkraut brings on softening of the
brain.*

*When you eat banana fritters
Every undertaker titters,
And the casket makers nearly go insane.*

*Some little bug is going to find you someday,
Some little bug will creep behind you some day,
With a nervous little quiver
He'll give cirrhosis of the liver;
Some little bug is going to find you some day.*

*When cold storage vaults I visit
I can only say what is it
Makes poor mortals fill their systems with such
stuff?*

*Now, for breakfast, prunes are dandy
If a stomach pump is handy
And your doctor can be found quite soon enough.
Eat a plate of fine pigs' knuckles
And the headstone cutter chuckles,
While the grave-digger makes a note upon his
cuff.*

*Some little bug is going to find you some day,
Some little bug will creep behind you some day,
Eating juicy sliced pineapple
Makes the sexton dust the chapel;
Some little bug is going to find you some day.*

*All those crazy foods they mix
Will float 'cross the River Styx,
And the meals we eat in courses
Mean a hearse and two black horses,
So before a meal some always pray.
Lucious grapes breed 'pendicitis,
And the juice leads to gastritis,
So there's death to greet us either way;
And fried liver's nice, but, mind you,
Friends will soon ride slow behind you
And the papers then will have nice things to say.*

*Some little bug is going to find you some day,
Some little bug will creep behind you some day.
Eat some sauce, they call it chili,
On your breast they'll place a lily;
Some little bug is going to find you some day.*

—Roy Atwell

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